GSA PRELIMINARY ASSESSMENT

HARDESTY FEDERAL COMPLEX
601-607 HARDESTY AVENUE
KANSAS CITY, JACKSON COUNTY, MISSOURI

Terracon Project No. 50017083
November 4, 2002

Prepared for:

UNITED STATES GENERAL SERVICES ADMINISTRATION
Kansas City, Missouri

Prepared by:

TERRACON
Lenexa, Kansas

Terracon

STATE OF MISSOURI Bob Holden, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.state.mo.us

February 21, 2003

Mr. David Hartshorn
General Services Administration
1500 Bannister Road, Room 2135
Kansas City, MO 64131-3088

RE: Federal Center Facility, 607 Hardesty Avenue, Kansas City, Missouri

Dear Mr. Hartshorn:

I have reviewed the Preliminary Assessment and Site Inspection (PA/SI) report for the Federal Center-Hardesty site. I also contacted Mr. Bryant Burnett, U.S. EPA-Region 7, on his review of the documents. The PA/SI report adequately addressed the contamination related to past activities at this facility.

Please make data available to the potential buyer that the TCE plume potentially goes off-site. As part of the early transfer process the potential buyer will be able to review the environmental assessment reports for the Federal Center facility. However, prospective buyers may not be aware of the groundwater plume leaving the site.

Please prepare a remedial action plan for the Federal Center site. It is the Missouri Department of Natural Resources' (department) understanding that the General Services Administration (GSA) wants to do a covenant deferral request as part of the Early Transfer Authority under CERCLA so the property can be put back into productive use faster. If you have any questions regarding the procedures the department needs to make in regard to the Early Transfer Authority please call me at (573) 751-7538 or P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

HAZARDOUS WASTE PROGRAM

Christine O'Keefe
Environmental Specialist
Voluntary Cleanup Section

c: Mr. Bryant Burnett, U.S. EPA Region 7, Site Assessment Branch

November 4, 2002

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United States General Services Administration
1500 East Bannister Road
Kansas City, Missouri 64131-3088

Attn: Mr. Dave L. Hartshorn (6PEF)

Re: GSA Preliminary Assessment
Hardesty Federal Complex
601-607 Hardesty Avenue
Kansas City, Jackson County, Missouri 64116
EPA Region 7
EPA ID No. MON000703320
GSA Order No. GS-06P-02-GXM-0004
Terracon Project No. 50017083

Dear Mr. Hartshorn:

Terracon, Inc. presents to the United States General Services Administration (GSA) this Preliminary Assessment (PA) for the Hardesty Federal Complex, Kansas City, Missouri. This document was prepared for use by GSA in evaluating environmental conditions of the property relative to future transfer of this federal property.

The PA was developed using United States Environmental Protection Agency (EPA) guidance. The PA also discusses non-CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) elements, such as petroleum, within the context of project-specific use to support transfer to private or public benefit entities. GSA has conducted the PA to facilitate property transfer. The PA serves as an informational baseline for decision-making amongst parties, specifically;

- Prudent due diligence by GSA as the landholding federal agency in protecting public health and the environment.
- A limited-scope assessment by GSA to collect and assemble readily available information about the federal property for use with the Region 7 EPA and the Missouri Department of Natural Resources (MDNR).

The PA is based on a visual survey of the subject site, a reconnaissance of adjoining properties, interviews with individuals knowledgeable about the subject site, a regulatory records review, project-specific research, review of subsequent documents provided by GSA in 2002 and a review of site use history. This report contains methods, observations, conclusions, and recommendations made relative to the site. Please read the report carefully for details.

GENERAL COMMENTS

The analysis presented in this PA is based upon data obtained from information discussed. This report does not reflect any variations in information which may yet be undiscovered. Actual conditions may vary.

Terracon is not an EPA contractor. This document does not purport to constitute a PA by EPA. This document is prepared for the exclusive use of our client GSA for the specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices generally consistent with EPA guidance. No warranties, either express or implied are intended or made. In the event any changes in conditions as outlined in this plan are observed, the conclusions contained in this document cannot be considered valid unless the changes are reviewed and the conclusions of this document are modified or verified in writing by the environmental professional.

We appreciate the opportunity to be of service to GSA on this project and look forward to working with you in the future. If there are questions concerning the report, or if we may be of further assistance, please call.

Sincerely,
TERRACON

Tracie A. Ragland
Environmental Scientist

For David E. Koch, Principal
Senior Project Manager

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GSA PRELIMINARY ASSESSMENT

HARDESTY FEDERAL COMPLEX
601-607 HARDESTY AVENUE
KANSAS CITY, JACKSON COUNTY, MISSOURI

Terracon Project No. 50017083
November 4, 2002

1. INTRODUCTION AND APPLICATION

The United States General Services Administration (GSA) has conducted a Preliminary Assessment (PA) for the Hardesty Federal Complex, Kansas City, Missouri.

GSA has determined the Hardesty Federal Complex to be excess property surplus to federal needs. GSA proposes to dispose of this Federal property to non-federal private or public entities. Historical information indicated that environmental impairment, including petroleum impacts, has occurred. GSA could, as one option transfer the property to non-federal entities prior to cleanup. This involves cooperative multi-agency participation of GSA, United States Environmental Protection Agency (EPA), and Missouri Department of Natural Resources (MDNR).

The EPA required a PA to be conducted on the basis of available information. GSA elected to conduct the PA and a subsequent Site Inspection (SI) as the Federal landholding agency to facilitate information gathering for use by agencies. This PA provides baseline information usable by both Federal and State regulatory agencies to cooperatively facilitate future transfer of the Hardesty Federal Complex.

1.1 GSA Property Disposal

GSA disposes of real property (land and buildings) and personal property (furniture, computers, equipment, vehicles, etc.,) held by Federal agencies. Once a Federal agency determines it has unneeded property, that property is declared to be excess property. It is available for transfer to any other Federal agency. If no agencies want the excess property, it is declared surplus to Federal needs. It may then be donated to state or local governments or selected non-profit organizations, or it may be sold through public auctions.

Federal agencies still cannot divest themselves of their obligation to provide for protection of public health and the environment from impaired property.

1.2 Preliminary Assessment

The PA is used by EPA to evaluate the potential for a release of hazardous substances from a site. The PA is a limited-scope to collect readily available information about a site and its surrounding area. The PA is designed to distinguish, based on limited data, between sites that pose little or no threat to human health and the environment and sites that may pose a threat and require further investigation. The PA also identifies sites requiring assessment for possible emergency response actions.

If the PA results in a recommendation for further investigation, a Site Inspection is performed. The EPA publishes *Guidance for Performing Preliminary Assessments Under CERCLA* (Comprehensive Environmental Response, Compensation, and Liability Act), (NTIS PB92-963303, EPA 9345.0-01A) for conducting PAs. Traditionally PAs are conducted by EPA or their contractors. Other federal agencies may make use of the guidance.

1.3 Project-Specific Approach

EPA required a PA on the Hardesty Federal Complex on the basis of available information, specifically based on issues related to historical paint waste handling by a former tenant of Building 6. In the course of developing the PA scope, the assessment effort was expanded by GSA to address other issues, including petroleum.

GSA managed the PA process as the federal landholder. Although the PA was developed using EPA guidance, it discusses non-CERCLA elements (e.g., petroleum). This is within the context of project-specific use to support transfer to private or public benefit entities. Terracon understands that GSA has conducted the PA to provide an informational baseline for decision-making amongst parties, specifically;

- Prudent due diligence by GSA as the landholding federal agency in protecting public health and the environment.

- A limited-scope assessment by GSA to collect and assemble readily available information about the federal property for use with the Region 7 EPA and the MDNR.

- The inclusion of non-CERCLA elements of study to facilitate a future closure as part of redevelopment via State-level programs and MDNR.

In a strict CERCLA application, the PA and SI would result in formal scoring by the EPA. GSA does not intend to score the site until after preliminary review by EPA and MDNR. Terracon understands from the September 27, 2002 project meeting with agencies at the Bannister Complex that federal and state agencies will review the PA and SI information before final scoring. In the course of evaluation and checking data gaps in the report, GSA through Terracon developed a draft site scoring based on available information and PA data collection. The preliminary scoring was develop using EPA's "HRS QuickScore," software Version 1.1. "Federal Register / Vol. 55, No. 241. / Friday, December 14, 1990 / Rules and Regulations, Appendix A to Part 300 - The Hazard Ranking System" (Federal Register) was followed to properly enter site-specific data into HRS QuickScore. The draft scoring has been delivered to GSA under separate cover as raw data. The draft scoring is preliminary in nature, provided only for purposes of GSA planning and is not binding relative to CERCLA.

1.4 Project-Specific Technical Application

Terracon conducted a PA generally following the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), at the Hardesty Federal Complex in Kansas City, Jackson County, Missouri. Terracon conducted the PA in general accordance with the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA." The purpose of this investigation was to collect information concerning conditions at the Hardesty Federal Complex sufficient to assess the threat posed to human health and the environment, and to determine the need for additional CERCLA/SARA or other appropriate action. The scope of the investigation included a visual survey of the subject site on November 28, 2001, a reconnaissance of adjoining properties, interviews with individuals knowledgeable about the subject site, a regulatory records review, and a review of site use history.

Over the past few years, several phases of on-site investigation activities have been completed. Site investigation activities, including sampling of on-site materials, soils, and groundwater, have been completed across the site. Results of these sampling activities are detailed under separate cover, as the SI report, dated November 4, 2002. Numerous references accompany this PA report and the associated SI report. These references have been bound together and are presented in the three-ring binder labeled PA/SI REFERENCES – Hardesty Federal Complex.

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

The Hardesty Federal Complex is located at 601-607 Hardesty Avenue in a residential/ commercial area of Kansas City, Jackson County, Missouri, in the central portion of Kansas City (Figure 1). The geographic coordinates are 39° 06' 13.01" N latitude and 94° 31' 05.41" W longitude (Reference 1). The site is southeast of the intersection of Independence and Hardesty Avenues; with the entrance to the site approximately 500 feet south of the intersection.

Jackson County is characterized by a mild, temperate climate. Summers are warm and humid, with daily temperatures reaching 78° Fahrenheit or higher (Reference 2). The winter months are generally mild with daily average temperatures of 32° Fahrenheit (Reference 2). Mean annual precipitation is 38 inches (Reference 3).

2.2 Site Description

The total area of the Hardesty Federal Complex is approximately 18 acres (Reference 4). The Hardesty Federal Complex property is located on relatively flat terrain that slopes gently toward the southeast property boundary (Reference 4). The Hardesty Federal Complex is irregular in shape (Reference 4). The U.S. Government Services Administration (GSA) currently owns the subject site.

As noted in Figure 3, seven buildings are currently located on the Hardesty Federal Complex: Buildings numbered 3, 6, 7, 9, 10, 11, and 13 (each of the buildings were numbered by the GSA). These buildings were empty at the time of the site visit, with the exception of Building 6 which was occupied by the Federal Aviation Administration (FAA). The FAA was in the process of moving out of Building 6 during the site visit. Other buildings previously present at the site had been raised.

The perimeter of the property is fenced by a seven-foot chain-link fence. The fencing appears to be in good condition, and there is a locked entrance gate across the access driveway to the facility from Hardesty Avenue. A secondary entrance to the site from Independence Avenue is also gated and locked. Virtually all of the site is covered with buildings or paved areas, with the exception of a small landscaped/grass-covered area between Buildings 6 and 9 (References 4 and 5).

2.3 Operational History

Based on information obtained from historic Sanborn fire insurance maps, provided by Environmental Data Resources, Inc. (EDR), the site was previously a cultivated field in 1909 (Reference 6). Only the western portion of the site was depicted on the fire insurance maps; maps for the eastern portion of the site were not available for review. By 1920, Buildings 1, 2, and 3, were constructed on the northwest corner of the site (References 6 and 7). Buildings 1 and 2 were one large structure, but were identified by the federal government as two buildings, or as two functional spaces, 1 and 2. Buildings 1 and 2 are not currently considered part of the Hardesty Federal Complex (Reference 4). Buildings 1 and 2 are now part of the northwestern-adjoining property which consists of Megaspace, Ltd., a self-storage facility. Building 3 was identified as an independent electric power facility supporting Buildings 1 and 2 (Reference 6).

The federal government purchased the site, which included Buildings 1, 2, and 3, in 1940. The site was used as the Kansas City Quartermaster Depot during World War II. The Quartermaster Depot officially opened on December 4, 1940 (Reference 45). The function of the Quartermaster Depot was to purchase, store, and issue Quartermaster supplies for posts, camps, and stations in Kansas, Missouri, Arkansas, Nebraska, Oklahoma, Wyoming, South Dakota, and Utah. Part of the mission of the Quartermaster Depot was to receive and store protective and impermeable clothing, laundry and dry-cleaning supplies, inks, lithographic chemicals, petroleum products, petroleum handling equipment; reclaim petroleum containers; impregnate clothing to ward off effects of gas attacks; and procure graphic arts operating supplies and chemicals (Reference 45).

Between 1940 and 1943, 15 additional buildings, for a total of 18 structures, were constructed at the site. Two other buildings were constructed at the site after 1943. The site structures were identified as Buildings 1 through 20. The site was transferred to the GSA on October 1, 1960. Buildings 1 and 2 were sold to Megaspace, Ltd. in 1980, and are no longer considered part of the Hardesty Federal Complex. Buildings 4, 5, 8, 12, 14, 15, 16, 17, 18, 19, and 20 were demolished in the 1970's and 1980's. Various government agencies have used the site buildings for storage since 1960, including the Army Mapping Department, National Weather Service, FAA, U.S. Marines, Department of Energy (DOE), Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers (USACE), and the U.S. Postal Service (Reference 7).

2.4 Waste Characteristics

The following section discusses the operational history and waste characteristics for the existing seven structures (Buildings 3, 6, 7, 9, 10, 11, and 13). For the purpose of categorizing the waste characteristics, the site has been broken down and discussed by building and the potential wastes associated with each building.

- Building 3 (and 3A) is a one-story mechanical building, with a basement, covering approximately 18,098 square feet. The building was constructed in 1920. Underground coal storage and a concrete oil basin were previously associated with Building 3. The former concrete oil basin may have been associated with Building 12, formerly located at the site (see Section 2.4.2). The portion of the building identified as 3A was previously used as a train shed and welding shop. Building 3 contained the boilers used to heat the structures located on the subject site via steam supplied through tunnels. The boilers located on the first floor were previously powered with fuel oil, but are currently powered with natural gas. These first floor boilers are still used to heat the site buildings. The boilers in the basement were previously powered with coal, but are currently unused (References 4 and 8).

  A 12-story brick smokestack was observed associated with Building 3 to the north. An ash clean-out room, containing ash, was observed in the basement associated with the smokestack. Laboratory analytical results from a previous limited environmental assessment for the Hardesty Complex, prepared by Terracon, dated November 11, 1999, indicated that lead was detected in one sample of ash at a concentration of 7.0 milligrams per liter (mg/l), which was above the regulatory limit for TCLP (Toxicity Characteristic Leaching Procedure) lead of 5.0 mg/l (Reference 9). By definition, the ash in the clean-out room was identified as a characteristic hazardous waste. The smokestack associated with the clean-out room is not currently in use, and does not appear to have been used for several years (Reference 4). The ash is self-contained within the clean-out room so that a release of the ash to physical or environmental receptors is unlikely. Follow-up laboratory analytical results on three additional samples obtained from the GSA, dated February 22, 2000, indicated TCLP lead in "fly ash" from the smokestack clean-out room at concentrations of 1.01 mg/l, 0.181 mg/l, and 0.397 mg/l (Reference 10). These results indicate that the ash is not a hazardous waste since the results were below the regulatory limit for TCLP lead at 5.0 mg/l. These GSA analytical results contradict the results of the earlier sampling activities. Although the ash does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, or soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA," the ash may represent a potential hazardous substance source as a result of possible lead or other heavy metal contamination.

  Documentation provided by the GSA indicated the presence of a transformer in the basement of Building 3 with a polychlorinated biphenyl (PCB) dielectric fluid concentration of 50 to 500 parts per million (ppm) (Reference 37). This transformer was not observed during the PA site visit and no observable indications of a release were noted.

- Building 6 is a two-story warehouse building, covering approximately 56,000 square feet. The building was constructed on a concrete slab in 1941 (Reference 8).

Building 6 was originally constructed as a clothing treatment/renovation plant as part of the Chemical Warfare Service Project, operated by the Chemical Warfare Service. The purpose of the project was to treat new Army uniforms with "Impregnate I" to make them gas-resistant against chemicals such as "mustard gas." Old uniforms were to be laundered and then treated with "Impregnate I" (References 11 and 45). According to a *Cultural Resources Assessment* of the site (Reference 45):

> "The chemicals which were used to form "Impregnate I" were kept in tanks outside the building. The chemicals were mixed, then pumped through pipelines into the second floor of the building. The clothes were washed in the chemical mixture in machines on the second floor. After washing, they were drained upstairs, with an attempt to recover the chemicals during drainage. The clothes were then sent below to dry in clothes dryers. In the same building, they were spread on tables, folded, and packed for shipping. Soon after the Clothing Renovation Plant began operations, it was noticed that a rash of illnesses were occurring among employees. The operating officer notified his superiors, and soon thereafter a medical department was initiated. Better safety procedures were implemented and experimentation with the chemicals led to a lower concentration."

The clothing renovation plant was in operation until August 10, 1945 (Reference 45).

The following additional structures associated with the clothing treatment/renovation plant were formerly located south of Building 6, in an area currently grass-covered: a cooling tower, two pump houses, two storage tanks, and a recovery tank (Reference 11). One of the pump houses was identified as Building 14 in a diagram dated December 1979 (Reference 12). Information obtained from a Phase I Environmental Site Assessment (ESA) of the Hardesty Federal Center, prepared by Terracon, dated August 19, 1999, indicated that two or three open concrete below grade rooms may have been formerly located in the grassy area to the south of Building 6 (Reference 8). These rooms were reportedly used to hold the tanks containing the "Impregnate I" and were reportedly filled with sand several years ago (Reference 8). What appeared to be objects (possibly holding tanks/structures associated with the former clothing treatment process) were evident in 1961, 1967, 1973, and 1980 aerial photographs of the site (Reference 50).

According to the December 1979 site diagram, two pits and tank support structures were located in the current-day grassy area between Buildings 6 and 9, presumably associated with tanks containing clothing treatment/renovation chemicals (possibly "Impregnate I"). According to the December 1979 site diagram, an existing concrete pit, 33 feet long, 14 feet wide, and 5 feet 8 inches deep, was located in the current-day grassy area along the southern exterior side of Building 6. The site diagram indicated that the floor in this pit was to be broken through in four places for drainage, that the existing concrete tank supports were to remain, and that the pit was to be filled. The pit was filled with sand or soil according to interviewee information obtained from Terracon's Phase I ESA report dated August 19, 1999 (Reference 8). Another existing concrete pit, 14 feet long, 14 feet wide, and 3 feet deep, was located approximately 40 feet south of Building 6 in the current-day grassy area. The site diagram indicated that the walls and pedestals of this pit were to be demolished to 2 feet below finish grade. The site diagram also indicated that five concrete

tank supports were to be demolished to 2 feet below finish grade and that the slab was to be broken at five locations. These tank supports were depicted along the southern exterior wall of Building 6 (Reference 12). Depressions observed in the ground surface in this area during the Terracon site visits in 1999 and 2001 appear to correspond to locations on site diagrams showing the recovery tank and holding tank structures associated with the clothing treatment/renovation activities (Reference 4).

Waste characteristics, if any, associated with the clothing treatment/renovation plant could not be documented or verified during the preparation of this PA. However, the *Cultural Resources Assessment* report indicated that the uniforms were drained, after being washed, in an attempt to recover the chemicals used in the impregnation process. At the end of World War II, many of the records from the war were destroyed as part of demobilization activities (Reference 45). As a result, records concerning the ingredients of "Impregnate I" and any waste characteristics or disposal practices were not readily available. The potential exists that a possible release of CERCLA hazardous substances to soil and/or shallow groundwater from the former chemical holding tank pits may have occurred, based on a lack of supporting documentation to prove otherwise.

Previous use of Building 6 after the clothing treatment/renovation plant included a United States Army book bindery (Reference 8). Occupancy dates of Building 6 by the book bindery could not be determined. FAA occupancy of Building 6 began in 1969 as an FAA warehouse for electronic equipment and for electronic equipment assembly. Printed circuit boards were manufactured at Building 6, with welding and spray painting activities (Reference 8).

Waste characteristics associated with the FAA use of Building 6 included the storage of used wet nickel-cadmium batteries. Batteries removed from service were temporarily stored at the FAA staging area, prior to a one-time removal action by Phillip Services, Inc. of Columbia, Illinois, for disposal at Solvent Recovery Corporation (SRC) in Kansas City, Missouri. Approximately 2740 pounds of waste batteries identified as D002 (corrosive) and D006 (cadmium) hazardous waste were removed from the site on April 2, 1998, and disposed of at SRC on May 1, 1998, (Reference 14). No explanation was provided in the documentation for the one-month lag time of the removal of the wastes from the subject site to the disposal of the wastes at SRC. This one-time removal action resulted in a listing of the facility as a Resource Conservation and Recovery Information System (RCRIS) Large Quantity Generator of hazardous wastes (production of at least 1000 kilograms (kg)/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste). An FAA letter of request to change the generator status to "inactive" was received by the Missouri Department of Natural Resources (MDNR) on January 9, 2001. This letter stated that no hazardous waste has been generated at Building 6 since April 2, 1998. However, Building 6 was identified as being associated with conditionally exempt small quantity generation of hazardous waste, according to a March 2, 2001, MDNR Compliance Evaluation Inspection Report, as discussed below (References 14 and 18).

Waste characteristics associated with the FAA use of Building 6 also included waste paint filters generated from the paint booth. The filters in the exhaust vent collected overspray from spray cans. These filters were changed a few times a year and disposed of in a dumpster for removal by Deffenbaugh to a sanitary landfill. A Notice of Violation (#4974) was issued by the MDNR Kansas City Regional Office on March 16, 2001, as discussed in MDNR's March 2, 2001, Compliance Evaluation Inspection Report, concerning the failure to determine if the waste paint filters were hazardous wastes. Subsequent sampling and laboratory analytical results, as discussed in an FAA letter received by the MDNR April 23, 2001, indicated that the spent paint waste filters were not hazardous. An MDNR letter dated May 18, 2001, stated that the Notice of Violation (#4974) had been satisfactorily addressed (References 15, 16, and 17).

- Building 7 is a one-story storage building, covering approximately 8,970 square feet. The building was constructed on a concrete slab in the 1940's. This building was previously occupied by the USACE for the storage of electronic equipment, and was previously used as electrical and plumbing shops (References 4 and 8). Based on a review of historic operational use associated with Building 7, as determined during the preparation of this PA report, indications and/or likelihood of releases of hazardous substance sources to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA" were not identified.

- Building 9 is a two-story warehouse building, with a basement, covering approximately 178,379 square feet, and constructed in 1942 (Reference 45). "Four fingers of a creek" previously traversed the area of Buildings 9, 10, and 11 prior to construction (Reference 45). The four fingers of the creek were approximately 28 to 30 feet deep and were previously used as a dump. "Objectionable material" (materials not otherwise described) was removed and the area was backfilled prior to construction (Reference 45). Maps or diagrams depicting the location of previous tributaries on site, or identification or descriptions of the "objectionable material," were not discovered during the preparation of the PA report. Building 9 was constructed as a warehouse and included a conveyor and bailing operation, ration assembly area, and central pack room (Reference 45).

  Although not tested during this PA, the building's exterior walls appear to include cement asbestos panels over the windows. According to the Asbestos Inventory Report, thermal system ACM and miscellaneous ACM (such as flue pipe, floor tiles, and cement asbestos exterior window panels) were identified at Building 9 (Reference 38). Although an asbestos inspection was not conducted during the PA, and the number and type of ACMs listed in the Asbestos Inventory Report were not verified during the PA site visit, what appeared to be suspected ACMs similar to those listed in the Asbestos Inventory Report were observed by Terracon in Building 9 during the November 28, 2001, site visit. Indications of releases of what appeared to be suspected ACM were not observed at Building 9 during the November 28, 2001, site visit, and the cement asbestos exterior window panels appeared to be in good condition with no obvious indications of damage or a release (Reference 4). Based on a lack of an observable release, the ACM listed in the Asbestos Inventory Report does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA."

Building 9 was previously occupied by the National Weather Service as a training center. Weather-related equipment such as radar was formerly used in this building. FEMA had also previously used this building. This building was also previously used for limited storage of printing equipment (References 4 and 8). A firing range was observed in the basement of this building. The firing range is no longer in use. A small bullet stop, consisting of a curved metal backstop and a sand trap, was observed at the base of the firing range, with sand in the sand trap. What appeared to be spent shell casings were observed within the sand in the bullet stop. The sand is self-contained within the bullet stop in the indoor firing range so that a release of the sand to physical or environmental receptors is unlikely. Documentation of lead testing or lead content of this sand was not readily available during the PA (References 5 and 9). Although the sand does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, or soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA," the sand may represent a potential hazardous substance source as a result of potential lead contamination. Based on a review of historic operational use associated with Building 9, as determined during the preparation of this PA report, other indications and/or likelihood of releases of hazardous substance sources to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA" were not identified.

- Building 10 is a two-story warehouse building, with a basement, covering approximately 92,728 square feet, and constructed in 1942 (Reference 45). Building 10 was constructed as a warehouse including an assembly area, conveyors, and packing areas (Reference 45). Building 10 was also used for Army training and an Armory. Building 10 was previously used as office space and as a warehouse by the USACE.

  One transformer located in the Building 10 basement electrical vault was identified with a label indicating that the transformer contained 50 to 500 parts per million (ppm) polychlorinated biphenyl (PCB) dielectric fluid. No indication of a release was observed from this transformer. Documentation provided by the GSA confirmed the concentration of PCBs in this transformer at 50 to 500 ppm. This documentation also indicated the presence of another transformer (not observed during the PA site visit) in Building 10 with a PCB concentration of 70 ppm (Reference 37).

  Based on a review of historic operational use associated with Building 10, as determined during the preparation of this PA report, indications and/or likelihood of releases of hazardous substance sources to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA" were not identified.

- Building No. 11 is a two-story warehouse/office building, with a basement, covering approximately 216,992 square feet, constructed in 1942 (Reference 45). Building 11 was constructed as a warehouse and included assembly, holding, and packing areas (Reference 45).

This building was previously occupied by the Defense Finance and Accounting Center, and the Defense Mapping Department from the mid 1950's to 1990 (Reference 45). The Army "Home Town News" was produced in Building 11, as well (Reference 45). This building was also used for the storage of electronic equipment and furniture, and as an auction area for Allied Signal (References 4 and 8).

Notifications of Regulated Waste Activity, dated May 18, 1994 and July 22, 1994, regarding hazardous waste D008 (lead) were temporarily issued for Building 11, Door 4. These notifications indicated that Building 11 was identified as being associated with a RCRIS Small Quantity Generator (SQG) of hazardous waste, producing 100 to 1,000 kg/month of non-acutely hazardous waste (Reference 19). Indications of violations associated with the SQG listing of Building 11 were not identified during a review of historic operational use of Building 11.

Laboratory analytical results from a previous limited environmental assessment for the Hardesty Complex, prepared by Terracon, dated November 11, 1999, indicated that material observed in a Defense Mapping Department film processing basin in Building 11 was not corrosive and did not contain silver (Reference 9). Based on a review of historic operational use associated with Building 11, as determined during the preparation of this PA report, indications and/or likelihood of releases of hazardous substance sources to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA" were not identified.

- Building 13 is a one-story substation transformer building covering approximately 200 square feet, constructed on a concrete slab in the 1940's. This substation provides electrical power from Kansas City Power and Light (KCP&L) and distributes the power to each of the buildings on the subject site (Reference 8). The interior of Building 13 was not accessible and therefore not observed during the PA reconnaissance on November 28, 2001, (Reference 4).

  According to information obtained from Terracon's Phase I ESA of the Hardesty Federal Center, dated August 19, 1999, Terracon representatives had access to the interior of Building 13 during the 1999 site visit. The Phase I ESA report stated that the transformers were labeled as non-PCB (Reference 8).

  Based on a review of historic operational use associated with Building 13, as determined during the preparation of this PA report, indications and/or likelihood of releases of hazardous substance sources to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA" were not identified.

The following structures were formerly located at the site:

- Building 4 (a garage):
  This building was observed on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 5 (a paint house)

- Building 8 (function undetermined):
  This building was observed on 1961 and 1967 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 12 (location of a 150,000-gallon underground concrete fuel oil tank, see Section 2.4.2):
  A structure was observed in this location on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 14 (pump house with chemical storage tanks associated with Building 6 operations; please see above bullet for Building 6 for more details):
  This building was apparent on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 15 (function undetermined):
  What appeared to be a structure was observed in this location on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 16 (function undetermined);
- Building 17 (function undetermined):
  This building appeared as a warehouse-type structure on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50);
- Building 18 (function undetermined);
- Building 19 (warehouse structure):
  This building was apparent on 1961, 1967, 1973, and 1980 aerial photographs of the Hardesty Federal Complex (Reference 50); and
- Building 20 (garage storage):
  This building appeared as a warehouse-type structure on 1961, 1967, 1973, 1980, and 1989 aerial photographs of the Hardesty Federal Complex (Reference 50).

Many of these structures were removed from the subject site in the 1970's and 1980's (References 7, 8, 11, 12, and 20). Indications of waste characteristics, if any, associated with these structures could not be documented or verified during the preparation of this PA report.

- Open storage area: What appeared to be an open storage area was observed on the eastern portion of the site. This portion of the site was asphalt and concrete covered, with a narrow strip of grass along the railroad right-of-way to the east, during the November 28, 2001 PA reconnaissance. According to the *Cultural Resources Assessment* report, materials were previously stored on wood and metal pallets which apparently did not prevent contact of the stored items with the ground (Reference 45). Items stored in the open storage area included five-gallon water cans, "GI" cans, and insecticide (Reference 45). Aerial photographs of the Hardesty Federal Complex depict this open storage area used for parking and storage of unidentifiable objects in 1961; storage of unidentifiable objects (including square shaped objects) in 1967 and 1973; and storage of unidentifiable objects in 1980 and 1989 (the square-shaped objects are no longer evident on the site) (Reference 50). Indications of releases or staining were not observed in the open storage area during the November 28, 2001 PA reconnaissance.

2.4.1 Asbestos-Containing Materials

According to an "Asbestos Inventory Report for the Federal Center, Buildings 3, 6, 7, 9, 10, 11, and 13," an asbestos inspection was conducted at the site on December 15, 1992 by Professional Industrial Hygiene Services (Reference 38). This Asbestos Inventory Report was provided by the GSA to Terracon and may not represent a complete list of all asbestos-containing materials (ACMs) at the site at this time.

According to the Asbestos Inventory Report, the following ACMs were identified in the following buildings at the site (Reference 38):

- Thermal system ACM was identified throughout Building 3;
- Thermal system ACM and miscellaneous ACM (such as floor tiles, interior cement asbestos panels, and exterior corrugated cement asbestos) were identified at Building 6;
- Thermal system ACM and miscellaneous ACM (such as floor tiles) were identified at Building 7;
- Thermal system ACM and miscellaneous ACM (such as flue pipe, floor tiles, and cement asbestos exterior window panels) were identified at Building 9;
- Thermal system ACM and miscellaneous ACM (such as flue pipe, floor tiles, exterior window panels, and cement asbestos exterior panels) were identified at Building 10;
- Thermal system ACM and miscellaneous ACM (such as floor tiles, cement asbestos wallboard, cement asbestos vent pipes, cement asbestos wall partitions, cement asbestos floe, cement asbestos exterior window panels, ceiling tiles, and cement asbestos cooling tower fins) were identified at Building 11 (Warning labels observed on pipe wrap material during the 2001 site visit, in the second floor mechanical room of Building 11, stated "Danger Contains Asbestos Fibers."); and,
- Thermal system ACM and miscellaneous ACM (such as cement asbestos enclosure panel, cement asbestos corrugated ceiling, and woven 2 inch wide asbestos cable insulation) were identified at Building 13.

Although not tested during this PA, the exterior walls of Building 6 appear to include corrugated cement asbestos panel construction. According to the "Completion Report Covering Construction and Completion of Clothing Renovating Plant at Kansas City Quartermaster Depot," dated 1941, one of the sub-contractors associated with the construction of Building 6 was identified as Standard Asbestos Manufacturing & Insulating Company of Kansas City, Missouri (Reference 11). Although not tested during this PA, the exterior walls of Buildings 9, 10, and 11 appear to include cement asbestos panels over the windows.

Although an asbestos inspection was not conducted during the PA, and the number and type of ACMs listed in the Asbestos Inventory Report were not verified during the PA site visit, what appeared to be suspected ACMs similar to those listed in the Inventory Report were observed by Terracon in Buildings 3, 6, 7, 9, 10, 11, and 13 during the November 28, 2001 site visit. Indications of releases of what appeared to be suspected ACM were not observed at Buildings 3, 6, 7, 9, 10, 11, and 13 during the November 28, 2001 site visit, and the exterior corrugated cement asbestos panels appeared to be in good condition with no obvious indications of damage or a release (Reference 4). Based on a lack of an observable release, the ACM listed

in the Asbestos Inventory Report does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, and soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA."

2.4.2 Underground Storage Tanks and Petroleum Products

Former Underground Storage Tanks (USTs) containing petroleum products were previously located at the Hardesty Federal Complex in the following locations (References 23 and 24):

- One 1,000-gallon diesel UST was abandoned in place west of Building 3;
- Two 23,000-gallon heating oil USTs were removed from the area east of Building 3A in circa 1988 (approximately the location of former Building 15);
- One 178,000-gallon heating oil UST was abandoned in place southeast of Building 3A (approximately the location of former Building 12);
- One 2,000-gallon fuel oil UST was abandoned in place northeast of Building 3A;
- Two 1,000-gallon and one 560-gallon gasoline USTs were removed from the area of former Building 4 in 2000; and,
- One 1,500-gallon fuel oil UST was removed east of former Building 20 in 1988.

Several monitoring wells were observed at the Hardesty Federal Complex during the PA site visit on November 28, 2001 (Reference 4). These monitoring wells appear to be associated with on-going characterization investigations, conducted by Cape Environmental Management, Inc. (Cape), concerning the above-listed USTs. According to previous sampling activities in the area of the above-listed USTs, conducted by Cape, petroleum contamination was not detected in subsurface soils in the area of Buildings 3 and 20; however, petroleum contamination was detected in subsurface soils and groundwater in the area of Buildings 3A and 4 (Reference 24). Laboratory analytical results of groundwater samples collected at the Hardesty Federal Complex indicated levels of gasoline-range hydrocarbons, benzene, toluene, ethylbenzene, and xylene at levels above typical MDNR Cleanup Levels.

A release of hazardous substances from the Hardesty Federal Complex to the shallow groundwater is confirmed from former and abandoned in-place USTs formerly containing diesel, gasoline, heating oil, and fuel oil. These hazardous substances appear to be associated with petroleum products which are excluded from regulation under CERCLA. Action concerning the release of petroleum products at the Hardesty Federal Complex may be warranted under environmental statutes other than CERCLA.

3. GROUNDWATER PATHWAY

3.1 Hydrogeologic Setting

Jackson County is located in the Iowa and Missouri Deep Loess Hills Resource area of the Central Feed Grains and Livestock Region of the United States. Jackson County is located near the middle of an approximate 150-mile wide, north-south trending band of Pennsylvanian Age rocks that are located in western Missouri and eastern Kansas. Generally, the beds exhibit a subtle prevailing dip to the west-northwest. A prominent section of Pennsylvanian rock strata

is well exposed in Kansas City, Missouri, in the bluffs along the Missouri River. According to The Stratigraphic Succession in Missouri, MDNR (revised in 1995), the region is underlain by rock units of the Pennsylvanian System and the Missourian Series (Kansas City Group and Pleasanton Group) in the Time Stratigraphic Unit age classification. Alternating layers of shales and limestone, with an occasional sandstone layer, are common in the Kansas City Group, whereas alternating layers of shale and sandstone, with an occasional coal seam and limestone layer, are present in the Pleasanton Group (References 21 and 22).

The local geology at the Hardesty Federal Complex consists of backfill materials from the surface to approximately 4 feet below ground surface (bgs), silty clay from approximately 4 feet bgs to 12 feet bgs, fine clay from 12 feet bgs to approximately 24 feet bgs, and inorganic clays from 24 feet bgs to approximately 40 feet bgs, as determined from the boring logs associated with an on-site investigation of former petroleum USTs at the subject site (References 23 and 24).

Jackson County is located in the Saline Groundwater Province. In the upland areas above the alluvial valleys of the Missouri River, the Blue River, and the Little Blue River, the unconsolidated sediment is typically deficient of groundwater. Additionally, some unconfined aquifers are present at the interface of glacial outwash and underlying shales, but the quality and quantity is not adequate for drinking water purposes. Almost one-third of the state of Missouri is underlain by bedrock aquifers that contain saline water. Saline water is groundwater that contains 1,000 ppm or more of dissolved solids. Total dissolved solids in this region can exceed 20,000 ppm. The county is underlain by bedrock aquifers at depths of 250 to 400 feet that contain saline water which coincide with the presence of Pennsylvanian rocks. Total thickness of the aquifer ranges from 1,200 to more than 4,000 feet. Because Jackson County is located in the Saline Groundwater Province, the domestic water supply for the area of the Hardesty Federal Complex is from the alluvium of the Missouri River. The Missouri River alluvial aquifer is located in the flood plain of the Missouri River and varies from 40 to 100 feet bgs (References 21, 25, and 47). There is no potable water aquifer south of the Missouri River in the area of the Hardesty Federal Complex (Reference 25).

At the Hardesty Federal Complex, the depth to groundwater ranges from approximately 14.1 feet bgs to approximately 18.3 feet bgs, as determined from the boring logs associated with an on-site investigation of former petroleum USTs at the subject site (References 23 and 24). Groundwater at the site appears to flow toward the north-northeast (References 23 and 24), despite the site surface topographic gradient toward the southeast (Reference 4).

3.2 Groundwater Targets

The population within a four-mile radius of the Hardesty Federal Complex relies exclusively on municipal water taken from the Missouri River and its associated alluvial aquifer (Reference 25). The City of Kansas City, Missouri, has only one municipal water supply system and water treatment plant for Kansas City, Missouri, which is operated by the Kansas City, Missouri, Water Supply Division (Water Works/Treatment Plant). The water from the Missouri River alluvial aquifer is pumped by 14 wells located at the Water Supply Division, approximately five miles northwest (up the Missouri River) and topographically up-gradient of the Hardesty Federal Complex (Reference 25). The only water supply distribution map available for review at the

Water Supply Division was a Schematic Layout of Pump Stations, Meters, Feeder Mains, and Reservoirs, dated May 30, 1995. According to this map, the closest pump station to the Hardesty Federal Complex is approximately three miles to the northwest (Reference 26). Based on information provided by the Water Supply Division, there are no homes in the four-mile radius of the Hardesty Federal Complex which use private wells as a source for drinking water.

According to information provided by the MDNR Division of Geology and Land Survey (DGLS), as many as 700 monitoring wells may be located within a four-mile radius of the site. However, no private drinking water wells were indicated in the information provided within the four-mile radius (Reference 27).

According to the MDNR, Kansas City Regional Office, Water Pollution and Soil Conservation Division, Public Drinking Water Department, the only state-approved wellhead protection plan for the Kansas City metropolitan area concerns the City of Independence well water plant near the intersection of Highways 291 and 210 in Independence, Missouri, near the Missouri River, approximately 10 miles downstream of the Hardesty Federal Complex to the northeast (Reference 48). However, according to wellhead maps provided by the Jefferson City, Missouri MDNR, Water Protection and Soil Conservation Division, Public Drinking Water Program, which indicate wellhead locations in relation to various potential sources of contamination, several wellheads are located at the Independence facility approximately seven miles northeast and downstream of the Hardesty Federal Complex, east and west of Highway 291 and south of the Missouri River (Reference 49). Wellheads for the City of Liberty, Missouri are located approximately 9.5 miles northeast and downstream of the Hardesty Federal Complex, northeast of Highways 210 and 291 and north of the Missouri River (Reference 49).

According to the wellhead maps, the Hardesty Federal Complex is identified as a chemical site as "GSA-Hardesty Facility" (Reference 49). Other details concerning this identification are not depicted on the maps. At least eleven chemical sites/areas are identified on the maps between the Hardesty Federal Complex and the nearest downstream wellhead area (Reference 49).

Several monitoring wells were observed at the Hardesty Federal Complex during the site visit (Reference 4). These monitoring wells appear to be associated with on-going characterization investigations concerning former USTs (previously containing diesel, gasoline, heating oil, and/or fuel oil) at the Hardesty Federal Complex. Based on a review of current site characterization investigations, laboratory analytical results of groundwater samples collected at the Hardesty Federal Complex indicate levels of gasoline-range hydrocarbons, benzene, toluene, ethylbenzene, and xylene at levels above typical MDNR Cleanup Levels. These analytes appear to be associated with releases from former on-site USTs, and/or USTs abandoned in place, formerly containing diesel, gasoline, heating oil, and/or fuel oil, in the vicinity of Buildings 7 and 3A (References 23 and 24). Based on a review of current site characterization investigations, petroleum-contaminated groundwater may be restricted to the on-site area of the Hardesty Federal Complex.

3.3 Groundwater Conclusions

A release of hazardous substances from the Hardesty Federal Complex to the shallow groundwater is confirmed from former and abandoned in-place USTs formerly containing diesel, gasoline, heating oil, and fuel oil. Based on a review of current site characterization investigations, petroleum-contaminated groundwater may be restricted to the on-site area of the Hardesty Federal Complex. These hazardous substances appear to be associated with petroleum products which are excluded from regulation under CERCLA. Action concerning the release of petroleum products at the Hardesty Federal Complex may be warranted under environmental statutes other than CERCLA. Additionally, the groundwater in the area of the site is not potable (Reference 25) and is not relied on as a source of drinking water.

Shallow groundwater was sampled in the vicinity of Building 6 during SI activities. Concentrations of volatile organic compounds (VOCs) such as 1, 1, 2, 2-tetrachloroethane (PCA), tetrachloroethene (PCE), 1, 1, 2-trichloroethane (TCA), trichloroethene (TCE), and cis-1, 2-dichloroethene (cis-DCE) were detected at concentrations above MDNR guidelines. Please see SI report dated November 4, 2002 for further details.

No drinking water wells are located within seven miles of the site. All drinking water for the surrounding potential target population is supplied by an upstream alluvial aquifer limiting any type of a target population via the groundwater pathway.

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

Overland drainage from the site flows toward the southeast into on-site storm water inlets (Reference 4). However, the groundwater gradient appears to flow toward the north-northeast based on current on-site characterization investigations associated with former petroleum USTs located at the site (References 23 and 24). The area of the Hardesty Federal Complex uses a combined sewer system in which both sanitary sewer and storm water runoff use the same sewer infrastructure. Both sanitary sewer and storm water runoff are treated in the water treatment plant at the Water Supply Division (Reference 25). During times of heavy precipitation, the water treatment plant is by-passed, and the sanitary and combined sewers discharge directly to the Big Blue River, located approximately one mile east of the Hardesty Federal Complex, and to the Missouri River, located approximately 2.5 miles northwest of the Hardesty Federal Complex (Reference 28). The subject site is not located in a flood plain (Reference 29).

4.2 Surface Water Targets

There are no drinking water intakes located within a distance of seven miles downstream of the site. The residents are served by intakes along the Missouri River and 14 wells in the Missouri River alluvium located approximately five miles upstream of the Hardesty Federal Complex to the northwest at the Kansas City, Missouri, Water Supply Division (Water Works/Treatment Plant). Residents are not served by individual private wells (Reference 25).

The City of Independence receives its drinking water from wells installed in the Missouri River alluvium at a well water plant east and west of Highway 291, and south of the Missouri River, in Independence, Missouri, approximately seven miles downstream of the Hardesty Federal Complex to the northeast (References 46 and 49). Additionally, wellheads for the City of Liberty, Missouri are located approximately 9.5 miles northeast and downstream of the Hardesty Federal Complex, northeast of Highways 210 and 291 and north of the Missouri River (Reference 49).

According to the Missouri Department of Conservation (MDC), Kansas City, Missouri, Regional Protection Division Office, there are no fish hatcheries in the Missouri River as it runs through the Kansas City metropolitan area. There is some commercial and recreational fishing in the Missouri River in the metropolitan area. According to the MDC, there is very little commercial or recreational fishing in the Blue River as it runs through the urban areas of Kansas City, Missouri, closer toward its confluence with the Missouri River (Reference 30).

There are numerous wetland areas located within 15 downstream miles of the site. The nearest wetland (approximately four acres, and approximately 800 frontage feet) is located approximately 400 feet topographically downstream from the site to the southeast, across the railroad tracks, according to the U.S. Fish and Wildlife Service National Wetland Inventory Map, dated 1994 (Reference 31). However, a wetland was not observed by Terracon in this area during the site visit on November 28, 2001. The area to the southeast now consists of a parking lot and the Percy Kent Bag Company (manufacturer of paper bags) (Reference 4). The next nearest water body is the Blue River located approximately 4,000 feet topographically downstream from the site to the east (References 28 and 31). Numerous wetlands are associated with the Blue River. The Missouri River, approximately 2.5 miles northwest and three miles to the north of the site, also has numerous associated wetlands (Reference 31).

A letter of inquiry was sent to the MDC to determine the presence of any known endangered or threatened species or critical habitat concerning the Hardesty Federal Complex, and within an approximate four-mile radius of the site. A four-mile search radius was requested since a possible release of CERCLA hazardous substances to soil and/or shallow groundwater from the former chemical holding tanks south of Building 6 may have occurred at the Hardesty Federal Complex. This search radius was based on the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA."

According to the MDC, the following public lands, sensitive species and/or communities are known to exist in Jackson County (Reference 32):

Scientific Name	Common Name	Status (Federal/State)	Topographic Location of Sensitive Species/Communities in Jackson County	Distance to the Sensitive Species/ Communities from the Hardesty Federal Complex*
Dryopteris goldiana	Goldie's Fern (plant)	No federal status/ Imperiled in the state	T50N, R32W, S9	Greater than 4 miles
Penstemon cobaea var cobaea	A Beard-Tongue (plant)	No federal status/ Critically imperiled in the state	T49N, R33W, S25	Greater than 4 miles

Scientific Name	Common Name	Status (Federal/State)	Topographic Location of Sensitive Species/Communities in Jackson County	Distance to the Sensitive Species/ Communities from the Hardesty Federal Complex*
Mesic Forest	NA	NA	T50N, R32W, S9	Greater than 4 miles
Falco peregrinus	Peregrine Falcon (bird)	Federally endangered/ State endangered and critically imperiled in the state	T49N, R33W, S5	Approximately 2.8 miles west
Macrhybopsis gelida	Sturgeon Chub (fish)	Candidate for federal listing/rare and uncommon in the state	T50N, R33W, S15	Greater than 4 miles
Macrhybopsis storeriana	Silver Chub (fish)	No federal status/Rare and uncommon in the state	T50N, R32W, S17	Greater than 4 miles
Egretta caerulea	Little Blue Heron (bird)	No federal status/ Imperiled in the state	T49N, R33W, S20	Approximately 3.9 miles southwest
Scaphirhynchus albus	Pallid Sturgeon (fish)	Federally endangered/ State endangered and critically imperiled in the state	T50N, R33W, S27	Approximately 1.2 miles northwest

* = The distance to the sensitive species/communities from the Hardesty Federal Complex was determined based on the Township, Range, and Section information provided by the MDC, and based on the distance between the closest subject site boundary and the closest section line of the location of the sensitive species/communities to the subject site using topographic maps (Reference 28).

T = Township

R = Range

S = Section

NA = Not Applicable

N = North

W = West

According to the MDC, the Federally Threatened/State Endangered Bald Eagle (*Haliaeetus leucocephalus*) may occur as a winter resident in large river habitats and major lakes, and the Federally Endangered/State Endangered Indiana Bat (*Myotis sodalis*) roosts in riparian forests and upland forests near perennial streams (Reference 32).

The Hardesty Federal Complex is located in Township 49 North, Range 33 West, Section 2, which was not included in the MDC's list of locations of sensitive species and/or communities (References 28 and 32). No surface waters or vegetated areas (other than a small grassed/landscaped area south of Building 6) were observed at the site (Reference 4). Therefore, it is not anticipated that the sensitive species, or their habitats, listed in the above table, or the Bald Eagle or Indiana Bat, are located at the site. However, Mr. Charlie Creek, maintenance engineer at the Hardesty Federal Complex, stated that he has seen what he believes to be Peregrine Falcons perched on the top of the 12-story building located on the northwest-adjoining property of the subject site. Mr. Creek stated that the falcons feed on the pigeons that fly in and around the Hardesty Federal Complex buildings; however, he stated that he has never seen the falcons roosting on, or perched on, the buildings at the Hardesty Federal Complex. The presence of Peregrine Falcons on the northwest-adjoining property was not confirmed during this PA (Reference 4).

A letter of inquiry was also sent to the U.S. Fish and Wildlife Service (FWS) in Columbia, Missouri to determine the presence of any known endangered or threatened species or critical habitat concerning the Hardesty Federal Complex, and within an approximate four-mile radius of the site. According to a letter received from the FWS, "the U.S. Fish and Wildlife Service has reviewed the subject project proposal and determined that no federally listed species or designated critical habitat occurs within the project area; consequently, this concludes Section 7 consultation and no further review of this project is necessary" (Reference 36).

4.3 Surface Water Conclusions

There are no signs of a release of contaminants to surface water. Overland drainage from the site flows toward the southeast into on-site storm water inlets. No surface water bodies are located on the site (Reference 4). There are no drinking water intakes located within seven miles downstream of the site. The City of Independence receives its drinking water from wells installed in the Missouri River alluvium at a well water plant east and west of Highway 291, and south of the Missouri River, in Independence, Missouri, approximately seven miles downstream of the Hardesty Federal Complex to the northeast (References 46 and 49). Additionally, wellheads for the City of Liberty, Missouri are located approximately 9.5 miles northeast and downstream of the Hardesty Federal Complex, northeast of Highways 210 and 291 and north of the Missouri River (Reference 49).

A release to fisheries, wetlands, and/or threatened and endangered species is not suspected because there are no on-site or adjoining water bodies, or critical species habitats; there are no hazardous wastes/materials currently stored at the site; and there is no indication of past or present release of hazardous wastes/materials to any surface waters on site or in the vicinity of the site. Based on the above information, there appears to be no threat to the drinking water population, human food chain, or the environment via the surface water pathway.

5. SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

The total area of the Hardesty Federal Complex is approximately 18 acres. Seven buildings are currently located at the Hardesty Federal Complex: Buildings 3, 6, 7, 9, 10, 11, and 13. These buildings were empty at the time of the site visit, with the exception of Building 6 which was occupied by the FAA, who was in the process of moving out of Building 6 during the site visit. The perimeter of the property is fenced with a seven-foot chain-link fence. The fencing appears to be in good condition, and there is a locked entrance gate across the access driveway to the facility. Virtually all of the site is covered with buildings or paved areas, with the exception of a small grassed/landscaped area south of Building 6 (Reference 4).

5.2 Soil and Air Targets

There are no residents on site, and only one or two workers are on site for routine maintenance at any one time (References 4 and 13). The nearest residential area is approximately 100 feet west, across Hardesty Avenue. The nearest school is located approximately 0.25 miles west of the site, and the nearest daycare facility is located approximately 210 feet northwest of the site, across Hardesty Avenue. An abandoned commercial property is located adjacent to the site on the east. Other commercial properties are located approximately 100 feet north of the site, across Independence Avenue. Railroad tracks are located on the southeastern border of the site, with a vacant grass-covered field, parking area, church, and commercial property approximately 150 feet southeast from the site, across the railroad tracks (Reference 4). There are 6,262 residences within one mile of the site (Reference 33). Census information for a 0.25-mile and 0.5-mile radius from the site were not available from the Kansas City, Missouri Planning and Development Department (Reference 34). The total population within a 4-mile radius of the site is 116,338 as determined by census information provided by the Kansas City, Missouri Planning and Development Department (Reference 33).

The nearest water body is the Blue River located approximately 4,000 feet topographically downstream from the site to the east (Reference 28). Numerous wetlands are associated with the Blue River (Reference 31). The possibility exists that terrestrial sensitive environments of the Federally designated endangered/threatened Peregrine Falcon, Bald Eagle, and/or Indiana Bat habitats may be found in the wetland areas associated with the Blue River, as are known to inhabit Jackson County. Since the majority of the site is covered with buildings and paved areas, it is unlikely that terrestrial sensitive environments of Federally designated endangered species habitats are located at the site. However, Mr. Creek stated that he has seen what he believes to be Peregrine Falcons perched on the top of the 12-story building located on the northwest-adjoining property of the subject site, as discussed in Section 4.2. Mr. Creek stated that the falcons feed on the pigeons that fly in and around the Hardesty Federal Complex buildings; however, he stated that he has never seen the falcons roosting on, or perched on, the buildings at the Hardesty Federal Complex (Reference 4). The presence of Peregrine Falcons on the northwest-adjoining property was not confirmed during this PA. However, according to a letter received from the FWS, "the U.S. Fish and Wildlife Service has reviewed the subject project proposal and determined that no federally listed species or designated critical habitat occurs within the project area; consequently, this concludes Section 7 consultation and no further review of this project is necessary" (Reference 36).

Based on a review of current site petroleum UST characterization investigations, laboratory analytical results of subsurface soil samples collected at the Hardesty Federal Complex indicate levels of gasoline-range hydrocarbons, benzene, ethylbenzene, and xylene at levels above MDNR Cleanup Levels. These analytes appear to be associated with releases from former on-site USTs, and USTs abandoned in place, formerly containing diesel, gasoline, heating oil, and fuel oil in the vicinity of Buildings 7 and 3A (References 23 and 24). These hazardous substances appear to be associated with petroleum products which are excluded from regulation under CERCLA. Action concerning the release of petroleum products at the Hardesty Federal Complex may be warranted under environmental statutes other than CERCLA.

Subsurface soil samples were collected across the site as part of SI activities. Please refer to the SI report dated November 4, 2002, for further details.

5.3 Soil Exposure and Air Pathway Conclusions

No obvious indications of a spill or release of material to the soil surface was observed during the site visit. A spill of 78 one-gallon containers of paint thinner to the soil was reported at 619 Hardesty Avenue (the Building number for this address was not determined) on May 1, 1987 (References 22 and 35). No other records of this spill or information regarding the specific location of this spill were available from the GSA or MDNR for review.

A release of hazardous substances from the Hardesty Federal Complex to the subsurface soil is confirmed from former and abandoned in-place USTs formerly containing diesel, gasoline, heating oil, and fuel oil. These hazardous substances appear to be associated with petroleum products which are excluded from regulation under CERCLA. Action concerning the release of petroleum products at the Hardesty Federal Complex may be warranted under federal environmental statutes other than CERCLA.

Soils, primarily subsurface soils, were sampled as part of the on-site SI activities. Concentrations of semi-volatile organic compounds (SVOCs), VOCs, Resource Conservation and Recovery Act (RCRA) Metals were not detected at concentrations above the MDNR guidelines. Please refer to the SI report dated November 4, 2002, for further details.

Even though releases to the subsurface soils are present, and restricted to the subject site, there is a limited human target population and limited terrestrial sensitive environments present, reducing impact via the soil pathway.

A release to the air is not suspected because there are no known activities or materials on site which appear to generate air emissions. In addition, during the site visit, no odors were detected and there was no indication of any smoke or blowing dust or soil.

6. SUMMARY AND CONCLUSIONS

The federal government purchased the site in 1940, used it as a Quartermaster Depot during World War II, and used it for storage by various government agencies since World War II up until the current day (References 11 and 13). During this period, several USTs were installed at the site for storage of fuel oil, heating oil, diesel fuel, and gasoline. Releases from these USTs have impacted the subsurface soil and groundwater at the site (References 23 and 24). However, these petroleum product releases are excluded from regulation under CERCLA. Action concerning the release of petroleum products at the Hardesty Federal Complex may be warranted under environmental statutes other than CERCLA.

There are no signs of a release of contaminants to surface water. Overland drainage from the site flows toward the southeast into on-site storm water inlets. No surface water bodies are located on the site (Reference 4). There are no drinking water intakes located within 10 miles downstream of the site. The City of Independence receives its drinking water from wells installed in the Missouri River alluvium at a well water plant east and west of Highway 291, and south of the Missouri River, in Independence, Missouri, approximately seven miles downstream of the Hardesty Federal Complex to the northeast (References 46 and 49). Additionally, wellheads for the City of Liberty, Missouri are located approximately 9.5 miles northeast and downstream of the Hardesty Federal Complex, northeast of Highways 210 and 291 and north of the Missouri River (Reference 49).

A release to fisheries, wetlands, and/or threatened and endangered species is not suspected because there are no on-site or adjoining water bodies, or critical species habitats; there are no hazardous wastes/materials currently stored at the site; and there is no indication of past or present release of hazardous wastes/materials to any surface waters on site or in the vicinity of the site.

A release to the air is not suspected because there are no known activities or materials on site which appear to generate air emissions. In addition, during the site visit, no odors were detected and there was no indication of any smoke or blowing dust or soil.

A possible release of CERCLA hazardous substances to subsurface soil and shallow groundwater from the former chemical holding tanks south of Building 6 (and in the vicinity of former Building 14) has occurred. Collection and analysis of soil and groundwater samples from this area was completed during the SI activities. Please see the SI report dated November 4, 2002.

Although the ash in the smokestack clean-out room in Building 3 does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, or soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA," the ash may represent a potential hazardous substance source as a result of possible lead or other heavy metal contamination.

Although the sand in the bullet stop of the firing range in Building 9 does not appear to represent a threat to physical or environmental receptors (targets) via groundwater, surface water, air, or soil pathways, as defined in the USEPA "1991 Guidance for Performing Preliminary Assessments Under CERCLA," the sand may represent a potential hazardous substance source as a result of potential lead contamination.

Based on the information obtained and reviewed, the following potential sources of concern, likelihood of release, and pathways that represent a *potential* threat to human health and the environment are summarized below:

Location	Source	Likelihood of Release	Reference or Justification	Pathway	Sampled as Part of SI Activities
Building 3	Smokestack ash	No	Self-contained area	-----	Yes, to determine waste characteristics
Building 3	One 1,000-gallon diesel UST	No	Reference 24	-----	No, sampled by Cape under UST activity, CERCLA exclusion
Building 3A	One 2,000-gallon fuel oil UST	Yes	Reference 24	Groundwater & soil (PA Sections 3.2 & 5.2)	
Building 3A (approximately the location of former Building 15)	Two 23,000-gallon heating oil USTs	Yes	Reference 24	Groundwater & soil (PA Sections 3.2 & 5.2)	
Building 3A (approximately the location of former Building 12)	One 178,000-gallon heating oil UST	Yes	Reference 24	Groundwater & soil (PA Sections 3.2 & 5.2)	
Building 4	Two 1,000-gallon and one 560-gallon gasoline USTs	Yes	Reference 24	Groundwater & soil (PA Sections 3.2 & 5.2)	
Building 5	Paint house	No	Indications of release in area not observed	-----	No
Building 20	One 1,500-gallon fuel oil UST	No	Reference 24	-----	No
Building 6, former Building 14, and grass covered area	Use of "Impregnate I" and clothing renovation activities, former chemical tanks/pits	Yes	Analytical results of SI, Section 4.4	Groundwater (PA Section 3.2)	Yes
Building 6	Painting activities	Yes	Possible area of disposal between Buildings 6 and 9	Groundwater & soil (PA Sections 3.2 & 5.2)	Yes, sampled for VOCs
Building 6	Circuit board manufacturing	Yes	Possible area of disposal between Buildings 6 and 9	Groundwater & soil (PA Sections 3.2 & 5.2)	Yes, sampled for RCRA Metals
Buildings 9, 10, and 11	Former creek dump	Yes	Reference 45	Groundwater & soil (PA Sections 3.2 & 5.2)	Yes, background sample collected in vicinity of Building 10 and samples collected in vicinity of Building 9

Building 9	Indoor firing range	No	Self-contained area	-----	Yes, to determine waste characteristics
Building 11	Film processing	No	Self-contained area and previous sampling (Reference 9)	-----	No
Building 11	Production of newspaper	No	Indications of release in area not observed	-----	No
Building 13	Transformers	No	Indications of release in area not observed and transformers labeled as non-PCB (Reference 8)	-----	No
Open storage area	Insecticide storage	Yes	Reference 45	Groundwater (PA Sections 3.2 & 5.2)	No, PA information was not obtained until after SI activities were completed
Site wide	Transformers	No	Indications of release in area not observed	-----	No

Cape = Cape Environmental Management, Inc.
PCB = polychlorinated biphenyl
RCRA = Resource Conservation and Recovery Act
UST = underground storage tank
VOCs = volatile organic compounds

7. REFERENCES

The references used in this report, as numbered below, are included as a separate binder attachment for both the PA and SI report texts. However, only the title page of general references and of large documents (such as References 21, 22, and 41) have been included in the attachment.

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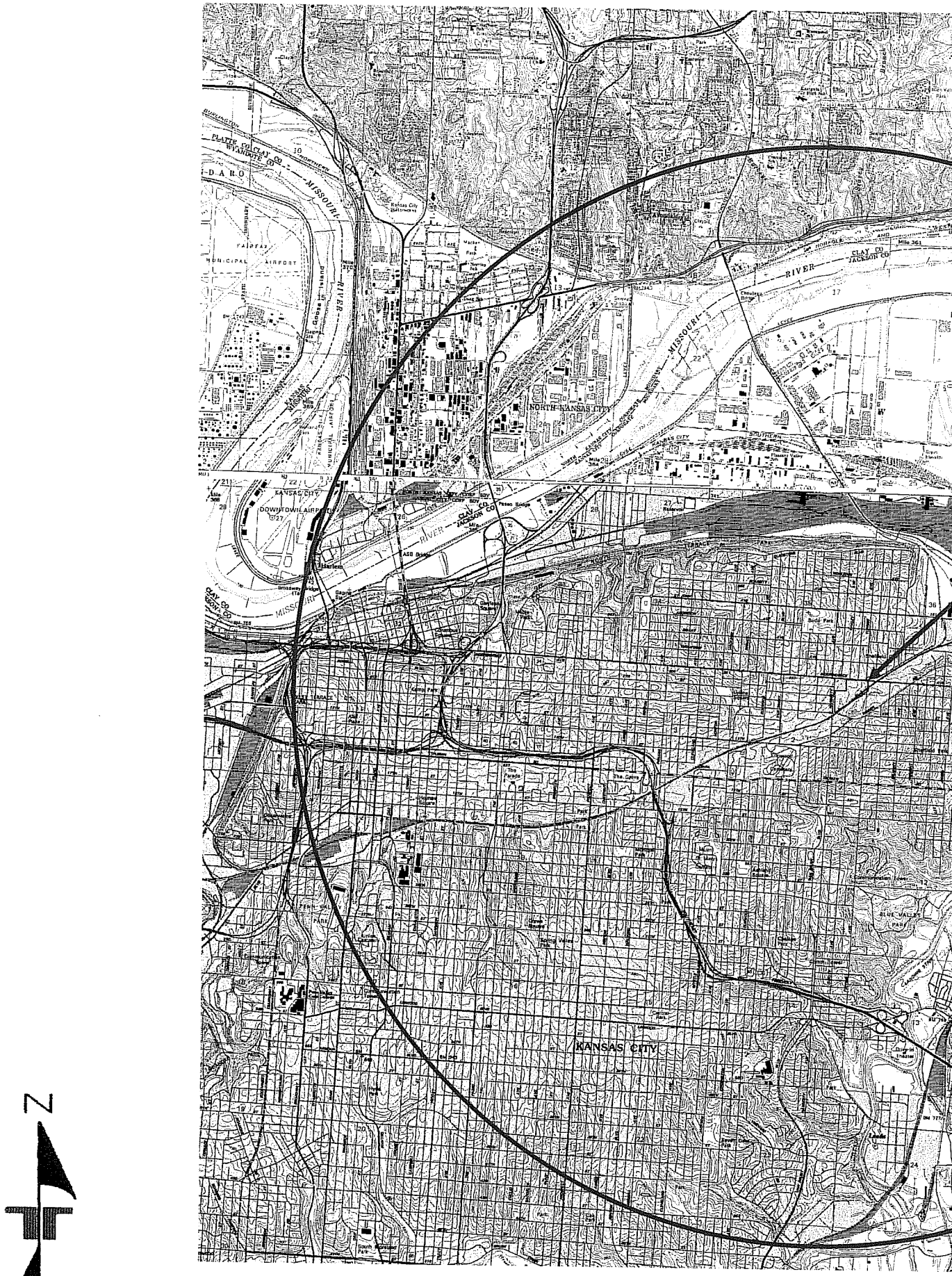
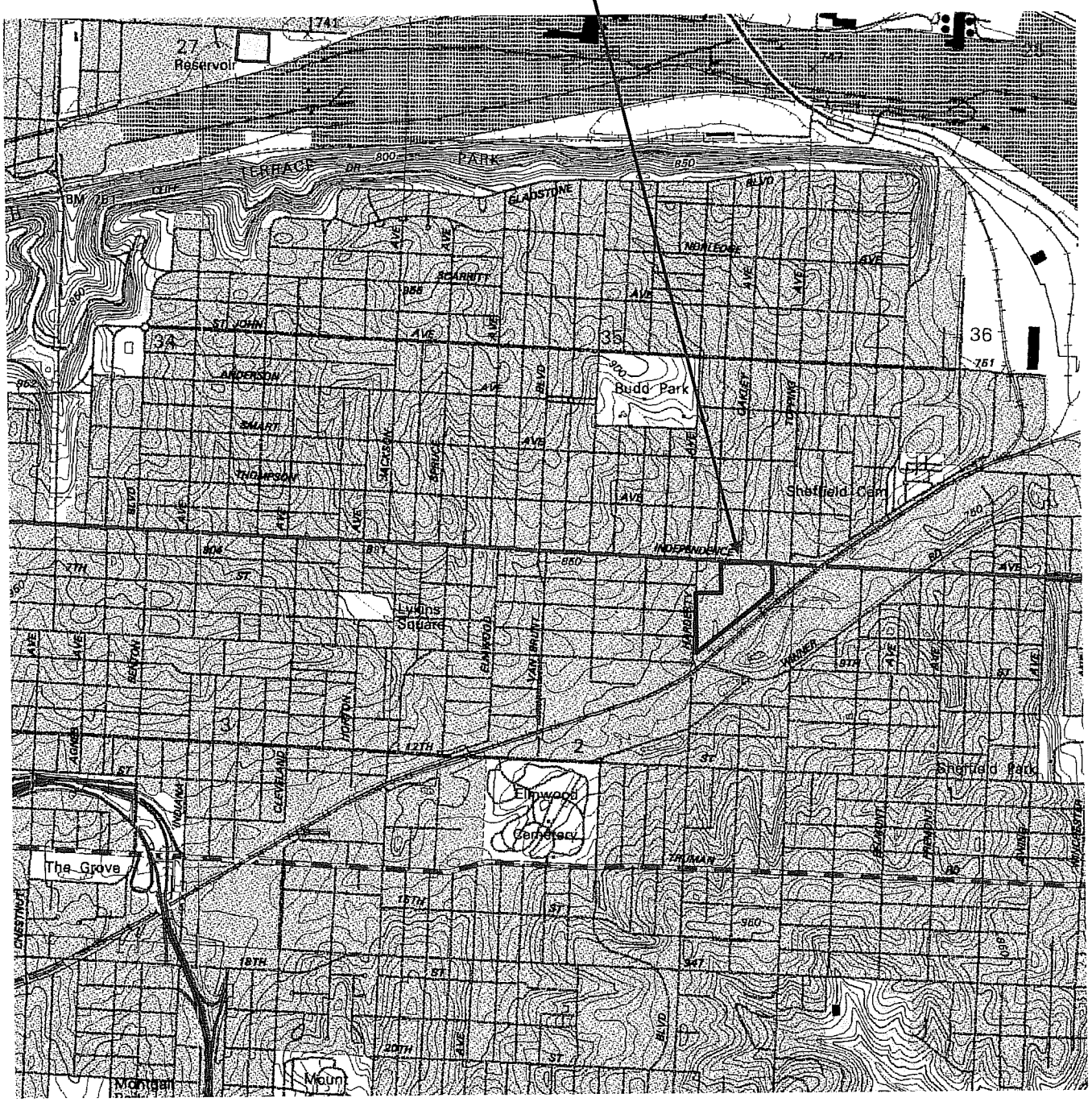
APPENDIX A

Figure 1 - Topographic Map
Figure 2 – Site Vicinity Topographic Map
Figure 3 – Site Plan


KANSAS CITY
NORTH KANSAS CITY
DOWNTOWN AIRPORT
MUNICIPAL AIRPORT
MISSOURI RIVER
N
SCALE 1:24,000
CONTOUR INTERVAL 10 FEET



U.S.G.S. 7.5 MINUTE SERIES TOPOGRAPHIC MAP

STATE of MISSOURI QUADRANGLE

KANSAS CITY, MO-KS

1991

FIGURE 2 - SITE VICINITY TOPOGRAPHIC MAP
HARDESTY FEDERAL COMPLEX
601-607 HARDESTY AVENUE
KANSAS CITY, MISSOURI

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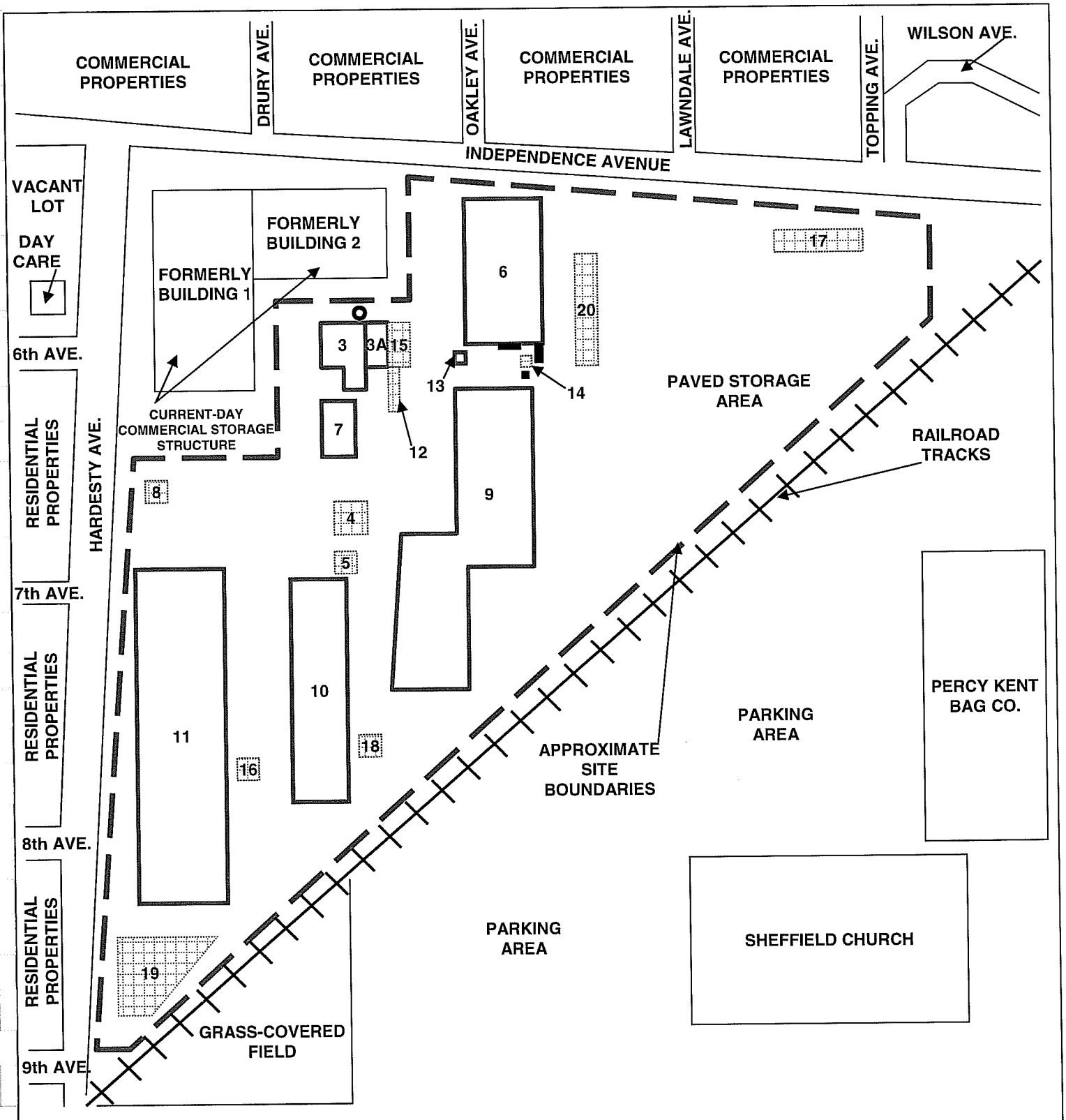

FIGURE 3 - SITE PLAN
HARDESTY FEDERAL COMPLEX
601-607 HARDESTY AVENUE
KANSAS CITY, MISSOURI

Proj. Mngr: TAR	Terracon	Proj. # 50017083
Designed by: TAR	15950 College Blvd	FN: Figure3.ppt
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